

bell transformer supply for wave-file player

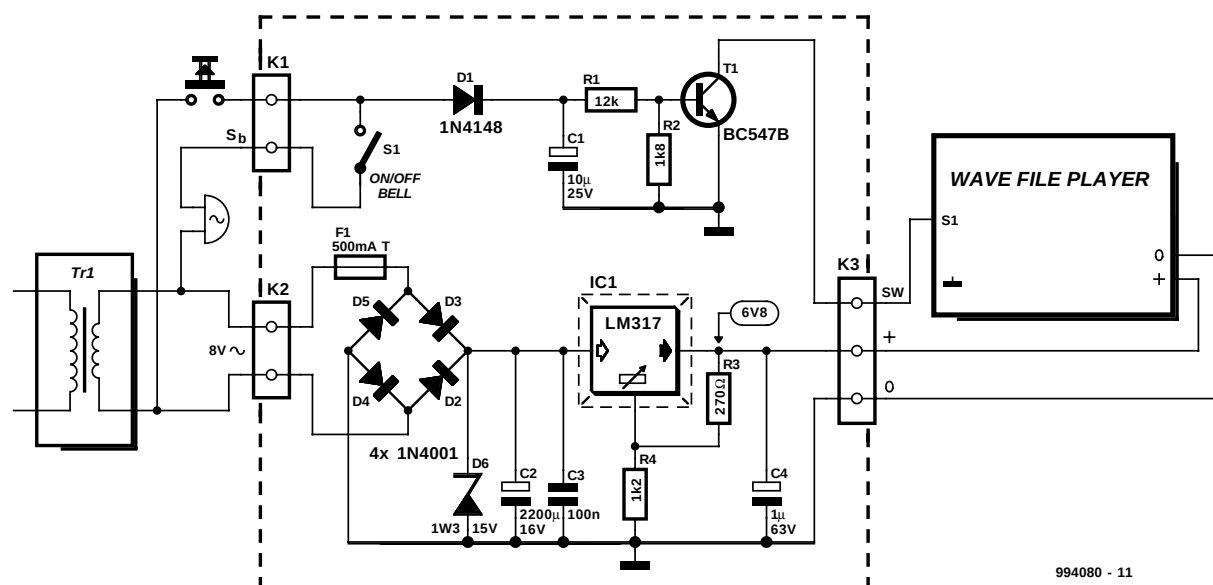


H. Bonekamp

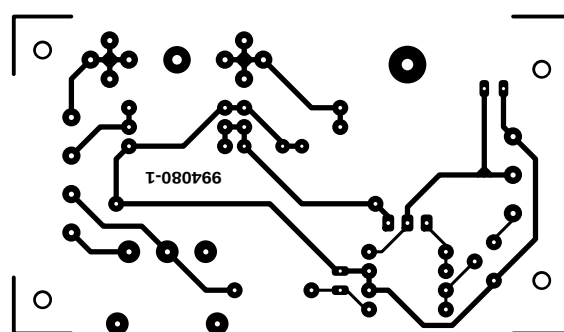
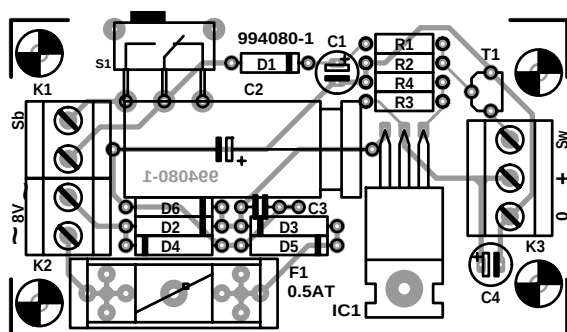
If the wave-file player described in the February 1999 issue of this magazine is used as a programmable doorbell, it is, of course, handy if its supply is derived from the doorbell transformer. In the design of the circuit in the diagram, it was borne in mind that as little as possible should be changed in the existing wiring of the doorbell and that it would be convenient to be able to switch the doorbell back on when the wave-file player is removed to program it with a new sound.

The alternating voltage at the secondary of the doorbell transformer is rectified by diode bridge D_2 - D_5 , and smoothed by capacitor C_2 . Zener diode D_6 , a fast type, serves to suppress transients. The resulting direct voltage is stabilized by regulator IC_1 which is set for 6.8 V. When the drop across the protection diode in the wave-file player is deducted from this, a direct voltage of about 6 V remains, which is used to supply the amplifier IC.

The need of modifying the existing wiring is precluded by the circuit around tran-



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sistor T_1 , which converts the alternating voltage arriving from the doorbell into a switching signal that is applied to, and processed by, the wave-file player. Switch S_1 enables the doorbell to be used as normal when the wave-file player is removed for any reason. Remember to open the switch again when the wave-file player is replaced, otherwise the player does not work and it is set to the wrong speed of 9600 baud via the S_1 input.

If desired, the unit can be coupled to a computer via a screened cable to make it possible for the program of the wave-file player to be altered without it being necessary to remove the unit.

The circuit is best built on the printed-circuit board shown, which is available through our Readers' Services (see towards the end of this issue). Note that the voltage regulator should be mounted on a small appropriate heat sink of 24 K W^{-1} .

[994080]

Parts list

Resistors:

$$R_1 = 12 \text{ k}\Omega$$

$$R_2 = 1.8 \text{ k}\Omega$$

$$R_3 = 270 \Omega$$

$$R_4 = 1.2 \text{ k}\Omega$$

Capacitors:

$$C_1 = 10 \mu\text{F}, 25 \text{ V}, \text{ radial}$$

$$C_2 = 2200 \mu\text{F}, 16 \text{ V}$$

$$C_3 = 0.1 \mu\text{F}, \text{ ceramic}$$

$$C_4 = 1 \mu\text{F}, 63 \text{ V}, \text{ radial}$$

Semiconductors:

$$D_1 = 1\text{N}4148$$

$$D_2\text{--}D_5 = 1\text{N}4001$$

$$D_6 = \text{BZT}03, 15 \text{ V}, 1.3 \text{ W}$$

$$T_1 = \text{BC}547\text{B}$$

Integrated circuits:

$$\text{IC}_1 = \text{LM}317\text{T}$$

Miscellaneous:

$$K_1, K_2 = 2\text{-way terminal strip, pitch } 5 \text{ mm}$$

$$K_3 = 3\text{-way terminal strip, pitch } 5 \text{ mm}$$

$$S_1 = \text{slide switch}$$

$$F_1 = \text{fuse holder with } 500 \text{ mA T fuse}$$

$$\text{Enclosure, e.g. Bopla E410}$$

$$\text{Heat sink for IC}_1: 24 \text{ K W}^{-1}$$